Listing of Claims

The below listing of claims will replace all prior versions of claims in the application.

1. (Currently Amended) A digital imaging system, comprising:

an image sensor comprising a two-dimensional array of pixel elements, said image sensor outputting digital signals as pixel data representing an image of a scene;

a frame buffer, in communication with said image sensor, coupled to store said pixel data provided by said image sensor; and

a tone correction circuit coupled to receive pixel data from said frame buffer and compute tone corrected pixel data using one or more tone correction curves,

wherein said tone correction circuit computes tone corrected pixel data for a first pixel by generating a pixel mask for an mxn neighborhood of pixels surrounding said first pixel, the pixel mask classifying the mxn neighborhood of pixels to a first value and a second value according to one or more threshold values, applying a blending mask of weight factors to said pixel mask and computing a selector value based on said pixel mask and weight factors associated with said blending mask, said selector value being used to derive a first tone correction curve for use to compute said tone corrected pixel data for said first pixel; and

wherein the selector value is computed by counting the number of first values in the pixel mask corresponding to a respective weight factor in the blending mask, multiplying each count value by the respective weight factor, and summing the count-weight factor products to obtain the selector value.

2. (Original) The digital imaging system of claim 1, wherein said first tone correction curve comprises a selected one of said one or more tone correction curves.

3. (Original) The digital imaging system of claim 1, wherein said first tone correction curve comprises a complex tone correction curve derived by blending a first one and a second one of said one or more tone correction curves based on said selector value.

4. (Original) The digital imaging system of claim 1, wherein said one or more tone correction curves comprise a first tone correction curve for outdoor lighting condition and a second tone correction curve for indoor lighting condition.

5. (Currently Amended) The digital imaging system of claim 1, wherein said pixel mask is generated by comparing pixel data for each pixel in said mxn neighborhood of pixels with a threshold value, said pixel mask assigning a first value of logical "1" to a pixel when the pixel data of said pixel is less than said threshold value and assigning a second value of logical "0" to a pixel when the pixel data of said pixel is greater than said threshold value.

6. (Original) The digital imaging system of claim 1, wherein said blending mask implements a two dimensional low pass filter, a Gaussian filter or any other filter that replaces a step function by a continuous slope.

7. (Original) The digital imaging system of claim 1, wherein said mxn neighborhood of pixels comprises a mxm neighborhood of pixels.

8. (Currently Amended) A method for providing tone correction to an image, comprising:

generating digital pixel data representative of an image of a scene using an image sensor, said image sensor comprising a two-dimensional array of pixel elements;

storing said digital pixel data in a frame buffer;

for a first pixel in said image, selecting an mxn neighborhood of pixels surrounding said first pixel;

generating a pixel mask for said mxn neighborhood of pixels, said pixel mask including a first value to indicate a pixel in said mxn neighborhood of pixels having a pixel value greater than a threshold value and said pixel mask including a second value to indicate a pixel in said mxn neighborhood of pixels having a pixel value smaller than said threshold value;

providing a blending mask including weight factors;

applying said blending mask to said pixel mask;

computing a selector value based on said pixel mask and weight factors associated with said blending mask, wherein computing the selector value comprises: counting the number of first values in the pixel mask corresponding to a respective weight factor in the blending mask, multiplying each count value by the respective weight factor, and summing the count-weight factor products to obtain the selector value;

providing a plurality of tone correction curves; and

deriving a first tone correction curve from said plurality of tone correction curves based on said selector value for use to compute said tone corrected pixel data for said first pixel.

9. (Original) The method of claim 8, wherein said deriving said first tone correction curve comprises selecting a tone correction curve from said plurality of tone correction curves.

10. (Original) The method of claim 8, wherein said deriving said first tone correction curve comprises blending a first one and a second one of said plurality of tone correction curves based on said selector value.

11. (Original) The method of claim 8, wherein said plurality of tone correction curves comprise a first tone correction curve for outdoor lighting condition and a second tone correction curve for indoor lighting condition.

12. (Currently Amended) The method of claim 8, wherein said generating a pixel mask for said mxn neighborhood of pixels comprises:

for each pixel is said mxn neighborhood of pixels, comparing the pixel data associated with each pixel to said threshold value;

assigning said first value being a logical "1" to a pixel when the pixel data of said pixel is less than said threshold value; and

assigning said second value being a logical "0" to a pixel when the pixel data of said pixel is greater than said threshold value.

13. (Original) The method of claim 8, wherein said blending mask implements a two dimensional low pass filter, a Gaussian filter or any other filter that replaces a step function by a continuous slope.

14. (Original) The method of claim 8, wherein said mxn neighborhood of pixels comprises a mxm neighborhood of pixels.